Results (by Rank) for: I am looking for a system that uses a special symbol, imprinted insignia, device, barcode, watermark, or other machine readable feature on a sheet of paper to link to two other types of information. The printed or imprinted symbol will act as a pointer to both reference information such as the identity of the owner, email address, telephone number or public key and access information such as security data, pricing, legal restrictions, ratings, etc.

50 documents returned

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SETH, FELLOW, AND SHARAD C., FELLOW; SAMAL, ASHOK, MEMBER, IEEE; YU, YUHONG; ý8, • *IEEE Transactions on Pattern Analysis and Machine Intelligence* • 08/01/97 • 2 pages (220 words) • SUMMARY
We present a system for recognizing a large class of engineering drawings characterized by alternating instances of symbols and connection lines.

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Giles, Roosevelt • *Network VAR* • 01/01/96 • 17 pages (5500 words) • SUMMARY
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M2 Presswire • 10/28/96 • 6 pages (1370 words) • SUMMARY
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Presents a favorable review of TopDown 1.1a ($345), a flowcharting program from Kaetron Software, Houston, TX (713).

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Jay Milne • *Network Computing* • 02/15/97 • 12 pages (3900 words) • SUMMARY
With most things in the computer industry, bigger, faster and cheaper is usually better. And for

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Hailey McKeefry, Diane Norman, Susan Scheck, and Diane Trommer prepared the reports for this article. • *Electronic Buyers' News* • 02/17/97 • 16 pages (4800 words) • SUMMARY
http://www.automationnet

****
DR-LINK
****
Request: I am looking for a system that uses a special symbol, imprinted insignia, device, barcode, watermark, or other machine readable feature on a sheet of paper to link to two other types of information. The printed or imprinted symbol will act as a pointer to both reference information such as the identity of the owner, email address, telephone number or public key and access information such as security data, pricing, legal restrictions, ratings, etc.
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SYMBOL AND NBS TO COOPERATE ON MARKETING ADVANCED IDENTITY TECHNOLOGIES
M2 Presswire
06/20/95 4 pages (840 words)

M2 PRESSWIRE-20 June 1995-SYMBOL AND NBS TO COOPERATE ON MARKETING ADVANCED IDENTITY
TECHNOLOGIES - INDUSTRY LEADERS DEVELOP JOINT INITIATIVE FOR SECURITY SYSTEMS (C)1994-95
M2 COMMUNICATIONS LTD

RDATE: 160695

Two leading companies in allied sectors of the personal identity and security industry are to cooperate in a new UK marketing initiative.

Symbol Technologies Limited is a world leader in sophisticated coded security information systems, particularly its two-dimensional barcodes. NBS Imaging specialises in the design and development of identity card technologies that have made it the market leader in this area as well as in tamper evident photo drivers' licenses and allied access/identity systems. The two companies will be cooperating in a joint initiative to market each other's products and services.

The new deal follows the successful cooperation of the two companies in North America. Symbol Technologies' PDF 417 two dimensional symbol has been adopted as the machine readable technology by the US Department of Defence for use on their Military ID cards and also American Motor Vehicle Administrators Association has adopted the technology for machine readable Drivers' Licences and other motor vehicle applications. One overlap of interest has been that NBS Imaging has also been successful round the world in supplying the technology for photo drivers' licences where the holder's photograph and all other details on this are electronically imaged to make forgery or alteration virtually impossible; positive identity of the driver becomes certain.

"We believe that this cooperation creates new business opportunities for both companies," said Mr Peter Mann, general manager of NBS Imaging. "Encryption on the two dimensional symbol allows a far more sophisticated identity card to be produced and this is suitable for many access and security applications. We know Symbol Technologies well and are delighted to have this opportunity of extending a mutually-beneficial relationship."

Mr Cordon Ambidge, Vice President and Managing Director of Symbol Technologies, added, "We developed the standard for two-dimensional barcodes and this has now been accepted across the industry. This new agreement will extend the acceptance and usage of this technology particularly as NBS Imaging is one of the recognised innovation leaders in this sector.'

Two-dimensional barcodes hold a significant amount of encrypted data in a relatively small barcode area typically, say, no more than half the space that might be available on one side of a credit card. The principle for the two dimensional format is similar to the familiar retail barcode and can be read electronically in much the same way by specialised electronic swipe readers. However, the code is not limited to 'bars' - lines of one- dimensional information - but uses complex patterns that cannot be altered by an authorised user after encryption - and are indecipherable by eye. These can hold signatures and photographs as well as a significant volume of any other data that might be relevant to the application - from, say, military service details to full medical records.

Symbol Technologies developed this more sophisticated symbology able to hold far more data as a result of its experience in the retail sector, where the company is market leader. The two-dimensional barcode will hold around 1500 alpha numeric characters. This might, for example, include an encrypted photograph as well as a complete file of text information.

The two-dimensional symbology developed by Symbol Technologies is known as PDF 417 and is considered to be state-of-the-art. The use of PDF 417 on ID cards is increasing because PDF 417 encodes 100 times the data of traditional, one-dimensional barcodes of the same size and because PDF 417 can encode text data and graphics - even photographs, fingerprints and signatures. With a PDF 417 ID card, information can be accessed directly from the PDF symbol - a high-density, high-capacity "portable data file' - without referencing a computer database.

While traditional bar codes, in use as early as 1973, function as "keys' to external databases, PDF 417 stores the entire data file in the code itself. The symbology encodes full ASCII, numeric or binary data and uses sophisticated error correction algorithms to correct lost or missing data.

Symbol Technologies is the world leader in barcode-driven data transaction systems with more than 2.5 million scanners and terminals installed. The company designs, manufactures and markets barcode reading equipment, portable data terminals and radio frequency data communications networks that are used as strategic building blocks in information systems for retail manufacturing package and parcel delivery, warehousing and distribution and other industries.

NBS Imaging and Symbol have worked together in the USA to offer identity card systems that can print the two-dimensional barcodes and the new agreement is an extension of this cooperation.

CONTACT: Roger Haywood, Kestrel Communications Ltd. Tel: +44 181 543 2299 Mr Peter Mann,
NBS Imaging Tel: +44 1932 351 531 Mr Cordon Ambidge, Symbol Technologies Tel: +44 1734
771222

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Read Opportunity With 2-D Bar Codes -- To succeed in this promising technology, it pays to know your symbologies
By: Julie Ritzer Ross
V A R Business
07/25/95 11 pages (3100 words)

The fire department of Grand Traverse County, Mich., had a dangerous problem. Manually logging firefighters' whereabouts on the job was too time-consuming and left an uncomfortably wide margin for error. Obtaining quick access to information about buildings in its jurisdiction was close to impossible. Lives and property were being put in jeopardy for lack of some way to attach data to the subjects.

Two-dimensional bar code VAR Portable Data Technologies of Traverse City, Mich., had the solution: PDF417, the 2-D bar code symbology developed and patented by Symbol

Technologies Inc. in Bohemia, N.Y. Two-dimensional bar codes are scanned vertically and horizontally, as opposed to linear bar codes, which are scanned only vertically. As a result, a 2-D bar code can fit hundreds of characters into the same amount of space occupied by 30 characters in any linear bar code. Because 2-D codes act as portable files rather than keys to information kept in a database, the data is always where it is needed most: on-site, literally.

In Grand Traverse County today, personal data on each firefighter, including level of experience and medical records, is printed on his or her protective garments where it can be scanned with laser scanners whenever personnel are dispatched to, or return from, a fire scene. Two-dimensional bar code labels were also generated for area buildings so a firefighter can immediately determine the location of emergency exits, find out what hazardous wastes may be there and learn any other details about the building that might otherwise be hidden threats.

Word about the application and its success spread rapidly; 75 other entities contacted Portable Data for demonstrations within a few months, according to John Piatek, vice president. The system has since been implemented at the Dallas-Fort Worth International Airport and by many small fire departments nationwide. The U.S. Department of Defense has begun testing it, and the U.S. Forestry Service will soon follow suit.

Portable Data has been "inundated" with requests for 2-D bar code applications and is working feverishly to fill them, Piatek says. And the company is hardly alone in its endeavors. Other VARs are scrambling to establish their own niches. Some are so intent on getting ahead in the game that they refuse to discuss their 2-D bar coding projects with anyone.

Observers say the total value of the 2-D bar code market, including printers, print media, scanners, data collection terminals and service, stands at close to $12 million. Scanners that can read the codes accounted for $9.8 million in sales last year alone. Substantial growth is predicted for the near future. The overall market should mushroom to $100 million by 1999, according to Venture Development Corp., Natick, Mass.

"The industry is showing some very impressive promise all around," says Girish Rishi, an analyst with Venture. "End users are really beginning to understand the benefits of utilizing two-dimensional symbologies, and vendors have stepped up their efforts to assist in the adaptation process." He recommends that VARs begin investigating the possibilities of marketing 2-D bar codes today instead of six months from now, when competition for a piece of the pie will have escalated.

New Dimensions

While just now emerging as a hot technology, two-dimensional symbology has existed for quite some time. Symbol Technologies received the patent for PDF417 in 1989. United Parcel Service (UPS) patented MaxiCode, a similar innovation used for package sorting,

that same year. International Datamatrix (I.D. Matrix), Clearwater, Fla., jumped on the bandwagon a bit later with a two-dimensional symbology dubbed Data Matrix. More than a dozen companies have since introduced two-dimensional symbologies, but only Symbol, UPS and I.D. Matrix (and by some accounts, Code One from Dedham, Mass.-based Laserlight Systems Inc.) are considered major players in this arena.

Uncertainty about which standard or standards would dominate has prevented even the big guns from seeing large audiences for 2-D bar coding. Early adoption has been limited to sectors like healthcare. Recent developments, however, are pushing open the floodgates to other markets. A few examples:

PDF417, Data Matrix, MaxiCode and Code One have all been released into the public domain, so anyone can use them free of restrictions, licensing requirements and fees. AIM USA, an accredited American National Standards Institute standards development organization, has published specifications for PDF417 and Code One and anticipates doing the same for Data Matrix and MaxiCode by the end of the year.

In February, ANSI's MH10 SBC-8 committee designated PDF417 as the standard for use in shipping and receiving applications, as well as for electronic data interchange (EDI) messaging. The committee is creating a draft standard aimed at facilitating the use of dense code symbologies to aid in transportation and material handling, with formal ANSI approval expected later this year.

The U.S. Department of Defense has begun using PDF417 as the two-dimensional symbology standard for a new identification card now being tested globally. One million cards bearing PDF417 have already been issued, and 15 million military personnel, dependents and retirees worldwide will eventually employ these "digital dog tags" at base checkpoints, hospitals, commissaries, clubs and PX facilities.

The American Association of Motor Vehicle Administrators recently chose PDF417 as its two-dimensional symbology standard for a range of Department of Motor Vehicle tasks, such as encoding vehicle registration information for renewals, handling vehicle title documentation and incorporating personal information into driver's licenses. Various applications of PDF417 are in use at motor vehicle agencies in New York, Pennsylvania, Colorado, Connecticut, Florida and Arizona.

The Electronic Industries Association last year picked Data Matrix as its standard for the labeling of small electrical components. The symbology has also been adopted by the Automotive Industry Action Group for the marking of automobile parts, as well as by the semiconductor industry for the identification of semiconductors and silicon wafers.

Such progress is creating opportunities for VARs that want to make 2-D bar code applications a part of their business. Because two-dimensional symbologies pack a higher con- centration of data than linear bar codes, the number of markets open to them is proportionately greater. Pharmaceuticals, public/private safety, government, electronics, hazardous materials and the credit card industry all fall into this category, says Craig Harmon, president of QED Systems, a Cedar Rapids, Iowa-based consulting, systems design, standards development and technology education firm.

"These groups have also been slower than others-for instance, retail-to embrace technology in general," he says. "Consequently, once VARs are through implementing the bar code software and hardware, they can develop additional implementation projects entailing innovations like wireless communication, scheduling software, etc."

Additionally, notes Dennis Priddy, president and CEO of I.D. Matrix, the advantages 2-D bar codes offer over linear bar codes let VARs build on old applications. "Say you have developed a bar coding and read- ing system for a client's warehousing and distribution operation," Priddy says. "Because two-dimensionals hold so much more information, you can go beyond limited-digit labels for boxes." Detailed codes can be affixed to everything from the tiniest components (for tracking and to ensure proper usage) to finished goods (for authentication purposes). "There are hundreds of thousands of these add-ons out there today," he says.

Reading Between the Lines

Jumping into the 2-D market now will enable VARs to take advantage of vendor programs before the crowd descends. Symbol Technologies, which devotes about $1 million annually to marketing PDF417, is offering VARs financial incentives to sell their clients on the technology. Participation in distributors' conferences and solutions showcases for users comprises part of the deal. Symbol has also introduced the Vista Alliance Program, targeted to a limited number of VARs that serve such vertical markets as public/private safety, office automation and the military. Participants receive extensive support in developing innovative PDF417 applications and configuring appropriate equipment.

Of course, VARs will encounter some obstacles as they enter this new market. First, two-dimensional symbology differs from traditional bar code symbology in that it encompasses binary data rather than just text. A clear understanding of how to work with data in developing applications is therefore necessary. Knowledge of decoding protocols, packet sizes and encoding techniques is equally critical.

Harmon of QED advocates leaning heavily on vendors for help with training. A VAR certification program put into place by Symbol Technologies includes four days of classes covering printing/symbology design issues, implementation/data encoding tools and software development. Consultations with experts from Symbol may be called for should VARs require special assistance.

Similarly, I.D. Matrix has begun to hold training classes in Florida for VARs working with its symbology; the program will be expanded to other states shortly. Applications, uses and technological implications of employing Data Matrix will soon be held on VARs' premises, and a users group is slated to form late this year.

The bridge between linear and 2-D bar codes is only partly finished. To date, only PDF417 can be read by traditional bar code scanners. Other symbologies can only be read by specialized equipment, "and there hasn't been much of that around," Priddy says. UPS designed its own readers for MaxiCode and I.D. Matrix makes its own Data Matrix

scanners. A unit from Intermec is the only scanner that reads Code One. Several vendors are reportedly working on broadening the menu of 2-D bar code scanning equipment, but VARs will likely find themselves waiting at least another six months before new equipment is widely available.

One bright spot on the equipment horizon: Symbol Technologies, which sells the PDF1000 scanner system, is looking at ways to integrate a decoder box and scanner into a single unit, making the scanning of PDF417 more ergonomically sound and reducing scanning costs from about $3,000 per system now to "considerably less," according to Richard Yost, product manager, PDF business development at Symbol.

Sorting Out the Symbologies

To succeed in the 2-D market, VARs must understand the differences between symbologies. Data capacities and quiet zone (border) requirements vary from code to code; what renders one symbology ideal for one application may make it the worst possible choice for another. "What's more, in this arena, clients don't generally approach VARs and say, 'I want PDF417' or 'Set me up with Data Matrix,' " Harmon says. "They come in with problems and want VARs to determine which symbology would best suit their needs. The only way to do this is to remain conversant with the major contenders."

VARs that want to emulate Portable Data's success in the two-dimensional field must move beyond learning the ins and outs of the various symbologies, according to Piatek. "That's only half the battle," he says. "The rest is a willingness to conduct pilot projects, even though you really want the cash up front. Acceptance of something that's as radically different from traditional bar codes as you can get does not come as readily as it might for another, more seemingly familiar technology."

Following are the parameters of PDF417, Data Matrix, MaxiCode and Code One. Information on opportunities to design applications around each code is included.

PDF417

CAPACITY: Up to 1,850 alphanumeric characters, or as many as 2,710 numeric digits, may be encoded onto each symbol. A symbol containing 500 alphanumeric characters can be printed in an area measuring 2.89 square inches.

PARTICULARLY SUITED FOR: Applications requiring handheld scanning.

PROS:

Amount of error correction may be selected by user, depending on application requirements.

Traditional bar code scanners may be used, with software modifications.

Can be read with any type of scanning technology, including linear laser, raster laser, and linear and charge-coupled devices (CCDs) that resemble video cameras.

Decoding is possible even if up to half of the symbol is unreadable or missing, Symbol Technologies claims.

CONS:

May occupy more space than other symbologies.

Some say PDF417 is slower to scan than other symbologies, particularly MaxiCode.

VAR OPPORTUNITY: For the past two years, Systems Application Engineering, Houston, has been designing PDF417 applications for gas companies that need to keep a tight rein on individual pipes installed in the ground. The VAR assists its clients in configuring two-dimensional labels within which the grade, purpose and planned location of each pipe is encoded. This prevents workers from arbitrarily deciding where a given pipe should or should not be reinstalled after initial placement, and helps them find pipes that officials want moved.

Don Pry, senior staff consultant, says customers become very receptive to the system when he points out that guessing whether a particular pipe is appropriate for a certain job is tantamount to risking a lawsuit. While Symbol Technologies offers conversion software that lets traditional bar code printers generate 2-D bar code labels, Pry counsels other VARs to specify units with built-in, two-dimensional printing capability. Monarch Marking Systems, Dayton, Ohio, and Zebra Technologies Corp., Vernon Hills, Ill., are two sources for such equipment.

DATA MATRIX

CAPACITY: Approximately 60 characters of data may be printed in a symbol measuring 12 square millimeters, or 3.5 square inches.

PARTICULARLY SUITED FOR: Encoding of "reasonably large" volumes of information in a small amount of space, according to Priddy.

PROS:

Uses convolutional and Reed-Solomon error correction methods; other symbologies use only Reed-Solomon. The former is a bit-correcting technology that is most effective on

small, random spots of symbol damage; the latter is a byte-correcting technology that works better on large concentrations of symbol damage, Priddy says.

Has multiple levels of error correction, facilitating use in closed applications where extreme print quality, environmental factors and scanning requirements come into play.

Solid perimeter on two adjacent sides and alternating black and white perimeter on other two sides allow decoder to quickly locate symbol in a cluttered background.

Will soon be utilized in EDI messaging.

CONS:

Smaller capacity than PDF417.

Some say error correction is less effective than its proponents claim.

VAR OPPORTUNITY: Blencal, a VAR in Deer Park, N.Y., is capitalizing on a new Food and Drug Administration requirement that certain pharmaceuticals packaging be imprinted with "100 percent verifiable" product specifications, manufacture dates and lot numbers. Several major companies, including SmithKline Beecham, have commissioned the VAR to configure pharmaceuticals labeling applications around Data Matrix.

"Data Matrix is ideal here because it can fit into the small amount of 'real estate' available on most pharmaceutical packaging," says Rod Staehlin, Blencal's general manager. "With the other codes we tried, we were not able to fit in as much information per quarter inch of label space."

Staehlin believes his company's ability to readily sell clients on two-dimensional symbology stems primarily from its having concentrated on the vertical market it knows best. "There are so many possibilities out there that it's tempting to explore unfamiliar ones," he says. "However, customers don't know the technology's capabilities and therefore cannot determine what kind of information can be decoded. VARs are in the perfect position to do that, but they need to know the client's business. Otherwise, disaster could ensue."

MAXICODE

CAPACITY: Puts about 100 characters of data into 1 square inch.

PARTICULARLY SUITED FOR: High-speed sorting applications.

PROS:

Bull's-eye design allows scanner to find and read code from any direction.

Symbol remains the same size no matter how much data is encoded.

Has hexagonal data elements, which occupy less cell perimeter than square data elements found in other symbologies.

CONS:

Overall limited capacity.

Small number of characters held will likely preclude use for printed EDI messaging applications.

VAR OPPORTUNITY: MaxiCode is still being used only by UPS to handle up to 1.5 million packages daily. Such information as ZIP code, package serial number, class and shipment number is encoded into MaxiCode labels; UPS is also encouraging customers to add their own information, such as package content, to the labels. The labels can be read on 42-inch-wide conveyor belts moving at up to 500 feet per minute. MaxiCode is just now becoming operational, but fixed scanners are being used to scan packages in UPS distribution facilities. Delivery trucks will be equipped with handheld scanners.

"Now that MaxiCode has ANSI approval, VARs that promote it can provide their customers with the ability to easily give drivers access to ZIP code information and better plan delivery routes," Harmon observes. "They will also be able to offer a chance to determine where packages are at all stages of the transportation cycle and whether they are part of a larger shipment."

CODE ONE

CAPACITY: A single symbol can encode up to 2,218 alphanumeric characters and as many as 3,550 digits. Smallest recommended dot size holds up to 2,088 characters in 1 square inch.

PARTICULARLY SUITED FOR: Applications in which symbol orientation is not constant (such as conveyor scanning). A code finder pattern orients the code in these situations.

PROS:

Large capacity.

Printing technologies currently used to print bar code symbols can also be used to print Code One symbols.

Can be scanned with area array CCD cameras, which are cost-competitive with laser scanners.

CONS:

Some observers cite major problems with error correction, which is likely the reason no Code One applications exist today.

VAR OPPORTUNITY: This is questionable. Market watchers initially anticipated that Code One would earn acceptance because it was placed in the public domain before any other symbology. It appears to have fallen by the wayside, however. Ted Williams, the Laserlight Systems president who invented Code One, is now endorsing Data Matrix and is working with I.D. Matrix on its future development. t

Additional Information:
Section: Mobile Computing Quarterly

Multi-Purpose Bar-Code Label Developed
COMLINE - Consumer News
05/08/97 2 pages (220 words)

Meiko Printing has recently developed a multi-purpose bar-code label that can exhibit at one time product information such as specifications, photographs and illustrations, along with a variety of bar codes, such as JAN, and ITF distribution codes, a development that is attracting attention.

One of the recently developed multi-purpose bar-code labels contains first and foremost a bar code, and is characterized by its indication of various information related to the product. The incorporated information includes seven types of bar codes, including JAN, UPC, Code 39, ITF distribution code, and NW, and written information such as the name and code number of the product, the number of products contained within a package, product specifications, methods of using the product, and product applications, etc. Moreover, the labels can also include photographs and illustrations of the product.

The company has developed three types of labels according to size: the "S-1" (unit price, five yen), the "S-2" (six yen), and the "S-3" (eight yen). The company will take orders of 500 or more labels in units of 500. Delivery time is about three days.

Additional Information:
Tokyo Stock Exchange Code:
Original Sources: Innovative New Packaging in Japan, 02/15/97
